

Appl. No. 09/549,559  
Amdt. Dated May 18, 2004  
Reply to Office action of March 18, 2004  
Attorney Docket No. P11914-US1  
EUS/J/P/04-1096

This listing of claims replaces all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1-29. (Cancelled).

30. (New) A method of rejection of noise and interference from a received combination signal by estimation of the desired signal having in addition to noise and interference been distorted by a communication channel through which the modulated transmitted desired signal has been passed, comprising the following steps:

- 41 cont
- a) receiving a signal as a combination of noise, interference and the distorted desired signal through one or more antennas;
  - b) separating the received signal into a real and an imaginary part;
  - c) modeling the noise and interference component as a filtered process using a model for colored noise;
  - d) forming an equation for the received signal as a function of the desired signal distorted by the communication channel and the noise and interference component by utilizing the signal structure obtained in steps b) and c);
  - e) selecting of values for the filter parameters in said equation; and
  - f) estimating the desired signal by calculation from said equation by means of said filter parameters selected in the foregoing step;

wherein said distortion caused by the communication channel is taken into consideration by modeling the channel as a linear filter coefficient in said equation;

wherein said filter parameters and channel coefficient are calculated by means of a known training sequence from the equation formed in step d) by knowledge of the data sent by the signal in said training sequence and by knowledge of the statistical properties of the noise component, whereafter the desired signal is estimated mathematically by means of an equalization method;

wherein in the filter parameters and the channel coefficient mathematical algorithm, the number of the parameters is selected by an order estimation procedure; and

wherein an adaptive order selection method of the process is used.

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16x 1, 2, 3, 4

31. (New) A method of rejection of noise and interference from a received combination signal by estimation of the desired signal having in addition to noise and interference been distorted by a communication channel through which the modulated transmitted desired signal has been passed, comprising the following steps:

- a) receiving a signal as a combination of noise, interference and the distorted desired signal through one or more antennas;
- b) separating the received signal into a real and an imaginary part;
- c) modeling the noise and interference component as a filtered process using a model for colored noise;
- d) forming an equation for the received signal as a function of the desired signal distorted by the communication channel and the noise and interference component by utilizing the signal structure obtained in steps b) and c);
- e) selecting of values for the filter parameters in said equation; and
- f) estimating the desired signal by calculation from said equation by means of said filter parameters selected in the foregoing step;

wherein said distortion caused by the communication channel is taken into consideration by modeling the channel as a linear filter coefficient in said equation;

wherein said filter parameters and channel coefficient are calculated by means of a known training sequence from the equation formed in step d) by knowledge of the data sent by the signal in said training sequence and by knowledge of the statistical properties of the noise component, whereafter the desired signal is estimated mathematically by means of an equalization method;

wherein in the filter parameters and the channel coefficient mathematical algorithm, the number of the parameters is selected by an order estimation procedure; and

wherein a suboptimal method for estimation of the desired signal is used.

32. (New) The method of claim 30, wherein in said adaptive order selection method the adaptive order is estimated by using a threshold test on the residuals.

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33. (New) The method of claim 30, wherein each estimated model of different orders is used to equalize a number of symbols and determine the corresponding metric and using said metric to select said model order.

34. (New) The method of claim 32, wherein the adaptive order selection method used is a recursive implementation of the identification logarithm.

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